0036

Incoming C0150025

From: "Pete Rutledge" <PRutledge@osmre.gov>
To: <jimdsmith@utah.gov>
Date: 3/21/2007 12:46:34 PM
Subject: FW: Bear Canyon Mine EA

Here is what my hydrologist thinks of the issue.

From: Harold Pranger
Sent: Wednesday, March 21, 2007 8:25 AM
To: Pete Rutledge
Cc: Richard Holbrook
Subject: Bear Canyon Mine EA

Pete:

I spent a few hours this morning looking at the subject EA, and in particular the sections leading up to the two questionable sentences. I believe there is a pretty easy fix, but I'd like to run it by you.

Currently, the offending sentences on page 32 read, "Portions of the Bear Canyon Fault were dry in the Bear Canyon Mine (DOGM, 2007) Draining large volumes of water from this fault system could have long-term adverse impacts to Birch and Bear Springs."

I think two major points need to be emphasized that are not clear in these sentences. First, this text needs to state that not only was no water previously encountered along the Bear Canyon fault at the Bear Canyon mine, but that no significant water is anticipated to be encountered along the fault system when mining advances into the new lease areas. And even so, another point needs to be emphasized - the springs emanate from deeper formations that are isolated stratigraphically (not structurally - the faults connect to the surface) from the seams that will be mined. The "most likely" recharge areas are the faults that area several miles from Big Bear Spring (p. 29), or "a stream crossing the Panther Tongue Sandstone where it crops out in a canyon" (p. 28), which, I believe, would be outside of the mine-impacted area. If any water actually is encountered by the mine, it likely would not deplete much if any of the source (recharge) area for the springs, which includes a much larger fractured and rubbelized region to the north of anticipated mining. And as the EA states, the northwestern (graben-faulted) region of the new lease area has an aquitard/aquiclude that should prevent the upward migration and loss of groundwater (p. 32) that might deplete the springs. And rubbelizing the coal seam units in room-and-pillar fashion will only enhance ultimate recharge when mining

ceases - infiltration should increase. The second major point that should be emphasized is that the company is obligated to replace the water for diminished valid water rights that might be affected.

I would suggest that this offending quote be revised to something like, ""Portions of the Bear Canyon Fault were dry in the Bear Canyon Mine (DOGM, 2007). Draining large volumes of water from this fault system could have long-term adverse impacts to Birch and Bear Springs, but the mine does not anticipate draining any substantial quantities of water from these springs' source areas. If valid water rights are impacted by the mining operation, they will be replaced."

The following sentences on page 31 also are a bit of a concern:

"Mining may depressurize ground water in a rock unit below the mined rock and lower the potentiometric surface."

"Mining and mining- related subsidence may intercept water from a surface-water source, aquifers, or fracture zones. Ground water may continue along its original flow path after interception or it may be redirected."

"With an insufficient depth of overburden the fracture zone may extend to the surface; these fractures could alter subsurface or surface flow paths to springs or streams. Water may be diverted from its previous point or zone of surface discharge and may even be diverted into the mine workings. This could result in a decrease or loss of flow in springs or seeps and could affect the ecosystems associated with a spring or seep. . . Water rights may be affected."

I don't know, at the moment whether we need to address the page 31 sentences or not. Dealing with fractured hydrologic systems is about as difficult as it gets, and the statements are not false, they are just perhaps overstating the potential problem a bit too much. "There are many hypotheses about the source areas for these springs." (p. 28)

I think it sort of boils down to how much of a "feel" there is by the state for the potential impacts. If they're experienced in this type of system/ environment and have enough information to give them the confidence they needed to make a decision (and officially the CHIA says this is the case), then perhaps these other statements on page 31 need to be likewise amended to reflect not just remote possibilities but likely realities.

That's my two cents worth -

Hal

Hal Pranger, hydrologist

Office of Surface Mining,

Western Regional Coordinating Center

1999 Broadway, Suite 3320

Denver, CO 80202